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DICKSTEIN SHAPIRO LLP
1177 AVENUE OF THE AMERICAS (6TH AVENUE)
NEW YORK, NY 10036-2714

EXAMINER	
MILORD, MARCEAU	

ART UNIT	PAPER NUMBER
2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/737,118	MATSUNAGA, YASUHIKO	
	Examiner	Art Unit	
	Marceau Milord	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,20,23-33 and 35-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☒ Claim(s) *3,6,9,10,13,15,16,24,25,30,35 and 36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 4-5, 7-8, 11-12, 14, 17, 20, 23, 26-29, 33, 37, 41-43, 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takao et al (US Patent No 6871071 B2) in view of Dahlman al (US Patent No 6912228 B1) and Miya (US Patent No 6347231 B1).

Regarding claims 1-2, Takao et al discloses a radio resource management method (figs. 1-3) comprising the control steps of: detecting (32 or 31 of figs. 1 and 6) the occurrence of interference between service areas provided by plural radio base stations (21 or 22 of fig. 1 and fig. 6;col. 3, line 44- col. 4, line 16; col. 7, line 59-col. 8, line 33) and controlling (RNC of figs. 1 and 6) transmission power of a common control signal, which governs a scope of a service area that a radio base station forms for interference suppression (col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the steps of controlling transmission power of a common control signal, which governs a scope of a service area that a radio base station forms, for interference suppression in response to said occurrence of interference between service areas provided by plural radio base stations; detecting the occurrence of interference based on radio link quality information notified from each of said radio base stations.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). It is clearly stated that the power control indicator controls the transmission power of a common control signal, which governs a scope of a service area that a radio base station forms for interference suppression. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claims 4-5, Takao et al discloses a radio resource apparatus (figs. 1-3) comprising: detecting (32 or 31 of figs. 1 and 6) the occurrence of interference between service areas provided by plural radio base stations (21 or 22 of fig. 1 and fig. 6; col. 3, line 44- col. 4, line 16; col. 7, line 59-col. 8, line 33) and controller for controlling (RNC of figs. 1 and 6) transmission power of a radio base station (21 and 22 of figs. 1 and 6; col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the steps of controlling transmission power of a common control signal which governs a scope of a service area that a radio base

station forms for interference suppression in response to said occurrence of interference between service areas provided by plural radio base stations; wherein the occurrence of interference is detecting based on radio link quality information notified from each of said radio base stations.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave

component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). It is clearly stated that the power control indicator controls the transmission power of a common control signal, which governs a scope of a service area that a radio base station forms for interference suppression. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claims 7-8, Takao et al discloses a radio base station in a radio communication system (figs. 1, 3, 6), said radio communication system including plural radio base stations each which provides a service area and a radio resource management apparatus for managing radio resources of said radio base stations (21 or 22 of fig. 1 and fig. 6;col. 3, line 44- col. 4, line 16; col. 7, line 59-col. 8, line 33), comprising: means (32 or 31 of figs. 1 and 6) for measuring a radio link quality and then notifying a radio resource management apparatus of radio link quality information being a measurement result (col. 9, line 42- col. 10, line 55; col. 11, lines 4- 65; col. 13, lines 45- col. 14, line 29;col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the features of a means for responding transmission power control issued from a radio resource management apparatus and

then controllably changing transmission power, of a common control signal, which governs a scope of service area that a radio base station forms, to suppress interference between service areas detected based on said measurement result in said radio resource management apparatus; wherein said notification means performs a notification operation at predetermined notification intervals.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). It is clearly stated that the power control indicator controls the transmission power of a common control signal, which governs a scope of a service area that a radio base station forms for interference suppression. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 11, Takao et al discloses a radio resource management method (figs. 1-3) comprising the steps of: detecting (32 or 31 of figs. 1 and 6) the occurrence of interference between service areas provided by plural radio base stations (21 or 22 of fig. 1 and fig. 6;col. 3, line 44- col. 4, line 16; col. 7, line 59-col. 8, line 33) and controlling (RNC of figs. 1 and 6) transmission power (col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the steps of controlling transmission power of a common control signal, which governs a scope of a service area that a radio base

station forms, for interference suppression in response to said occurrence of interference between service areas provided by plural radio base stations; detecting the occurrence of interference based on radio link quality information notified from each of said radio base stations.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave

component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). It is clearly stated that the power control indicator controls the transmission power of a common control signal, which governs a scope of a service area that a radio base station forms for interference suppression. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 14, Takao et al discloses a radio base station (figs. 1, 3, 6; 21 or 22 of figs. 1, 3, 6), comprising a detector for detecting (32 or 31 of figs. 1 and 6) the occurrence of interference between service areas provided by plural radio base stations (21 or 22 of fig. 1 and fig. 6; col. 3, line 44- col. 4, line 16; col. 7, line 59-col. 8, line 33) and controller for controlling (RNC of figs. 1 and 6) transmission power (21 and 22 of figs. 1 and 6; col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the steps of controlling transmission power of a common control signal which governs a scope of a service area that a radio base station forms, to suppress interference autonomously in response to said occurrence of interference between plural service areas.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for

comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). It is clearly stated that the power control indicator controls the transmission power of a common control signal, which governs a scope of a service area that a radio base station forms for interference suppression. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 17, Takao et al discloses a radio resource method (figs. 1-3; 12 of figs. 1 and 3) comprising the steps of: receiving information of radio link qualities from plural radio terminals (32 or 31 of figs. 1 and 6; col. 3, line 44- col. 4, line 16; col. 7, line 59-col. 8, line 33) and controlling (RNC of figs. 1 and 6) a load, being a radio terminal accommodated in a radio base station (21 and 22 of figs. 1 and 6; col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the features of a radio link quality information including information on link utilization to a radio base station in communication with each of the radio terminals, and wherein the load distributed control is based on the sum of sets of the link utilization information collected from respective radio terminals for each radio base station.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications

between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-

67;col. 10, lines 13-59; col. 11, lines 6-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 20, Takao et al discloses a radio resource method (figs. 1-3; 12 of figs. 1 and 3) comprising: a receiver for receiving information of radio link qualities from plural radio terminals (32 or 31 of figs. 1 and 6; col. 3, line 44- col. 4, line 16; col. 7, line 59-col. 8, line 33) wherein said radio link quality information includes information on link utilization to a radio base station, which is in communication with each of said radio terminals (col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the features of a controller for distributively controlling a load, being a radio terminal accommodated in a radio base station, based on the information of radio link qualities from plural radio terminals, said controller comprising means for distributively controlling a load based on the sum of sets of said link utilization information collected from respective radio terminals for each radio base station.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of

the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). It is clearly stated that the power control indicator controls the transmission power of a common control signal, which governs a scope of a service area that a radio base station forms for interference suppression. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the

technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 23, Takao et al discloses a radio resource management method (figs. 1-3; 12 of figs. 1 and 3) comprising the steps of receiving information of radio link qualities from plural radio terminals (32 or 31 of figs. 1 and 6; col. 3, line 44- col. 4, line 16; col. 7, line 59-col. 8, line 33) and a controller for controlling power (RNC of figs. 1 and 6) of a radio base station (21 and 22 of figs. 1 and 6; col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the steps of controlling transmission power of a radio bases station based on the information of radio link qualities from plural radio terminals.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power

level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claims 26-28, Takao et al discloses a radio resource management apparatus (figs. 1-3; 12 of figs. 1 and 3) comprising: a receiver for receiving information of radio link qualities from plural radio terminals (32 or 31 of figs. 1 and 6; col. 3, line 44- col. 4, line 16; col.

7, line 59-col. 8, line 33) and controller for controlling (RNC of figs. 1 and 6) transmission power of a radio base station (21 and 22 of figs. 1 and 6; col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the steps of controlling transmission power of a radio base station based on the information of radio link qualities from plural radio base stations.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The

controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 29, Takao et al discloses a radio resource management method (figs. 1-3; 12 of figs. 1 and 3) comprising the steps of: receiving information of radio link qualities from plural radio terminals (32 or 31 of figs. 1 and 6; col. 3, line 44- col. 4, line 16; col. 7, line 59-col. 8, line 33) and controlling (RNC of figs. 1 and 6) changing a frequency used by a radio base station (21 and 22 of figs. 1 and 6; col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8-col. 20, line 45).

However, Takao et al does not specifically disclose the features of controllably changing a frequency used by a radio base station based on the information of radio link qualities from plural radio terminals.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave

component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). It is clearly stated that the power control indicator controls the transmission power of a common control signal, which governs a scope of a service area that a radio base station forms for interference suppression. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 33, Takao et al discloses a radio terminal (figs. 1-3; 32 or 31 of figs. 1 and 3) comprising: means (21 or 22 of figs. 1 and 3) for measuring a radio link quality and then notifying a radio resource management apparatus (12 of figs. 1 and 3) of radio link quality information being the measurement result, the notifying means performing a notifying operation at predetermined notification intervals (col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the features of a means for responding distributed control indication for a load being a radio terminal accommodated in a radio base station, based on said radio link quality information, the distributed control indication

being created from the radio resource management apparatus, and switching a radio base station to be connected.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception

power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 37, Takao et al discloses a computer readable program (figs. 1-3), that operably controls a radio resource management apparatus (12 of figs. 1 and 3) in a radio communication system (col. 3, line 44- col. 4, line 16; col. 8, line 33; col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the steps of responding to occurrence of interference between service areas provided by plural radio base station and then controlling the transmission power of a common control signal, which governs a scope of service area that a radio base station forms to suppress the interference.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile

terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for

controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 41, Takao et al discloses a computer readable program (figs. 1-3), that operably controls a radio base station (21 or 22 of figs. 1 and 3) in a radio communication system, said radio communication system including plural radio base stations each providing a service area and a radio resource management apparatus for managing radio resources of said radio base stations (col. 3, line 44- col. 4, line 16; col. 8, line 33), comprising the steps of: measuring (21 or 22 of figs. 1 and 3) a radio link quality and then notifying said radio resource management apparatus (12 of figs. 1 and 3) of radio link resource information being a measurement result (col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the steps of responding to transmission power control produced from said radio resource management apparatus and thus controlling a change of transmission power of a common control signal, which governs a scope of service area that a radio base station forms, to suppress interference between service areas detected based on the measurement result in said radio resource management apparatus.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of

the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for

controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 42, Takao et al discloses a computer readable program (figs. 1-3), that computer controls the operation of a radio base station (21 or 22 of figs. 1 and 3) in a radio communication system, said radio communication system including plural radio base stations (21 or 22 of figs. 1 and 3) each providing a service area and a radio resource management apparatus for managing radio resources of said radio base stations (col. 3, line 44- col. 4, line 16; col. 8, line 33; 21 or 22 of figs. 1 and 3; col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the steps of responding to occurrence of interference between plural service areas and controlling transmission power, to suppress interference autonomously.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power

level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 43, Takao et al discloses a computer readable program (figs. 1-3) for executing the operation of a radio terminal by means of a computer, comprising the control step

of distributively controlling a load, being a radio terminal accommodated in a radio base station (col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the steps of controlling a load, based on information on radio link qualities notified from plural radio terminals, including the sum of sets link utilization information collected from radio terminals for each radio base station.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Regarding claim 46, Takao et al discloses a computer readable program (figs. 1-3) for executing the operation of a radio terminal by means of a computer, comprising the steps of: measuring a radio link quality and notifying a radio resource management apparatus (12 of figs. 1 and 3) of the radio link quality information being the measurement result (col. 9, line 42- col. 10, line 55; col. 11, line 65; col. 19, line 8- col. 20, line 45).

However, Takao et al does not specifically disclose the steps of responding a distributed control indication of a load based on a radio link quality information including the sum of sets of link utilization information collected from radio terminals, said distribution control being created from the radio resource management apparatus, said load being a radio terminal accommodated in a radio base station, and thus switching a radio base station to be connected.

On the other hand, Dahlman et al, from the same field of endeavor, discloses a power control methodology that adapts to the transmission load associated with communications between a base station and a mobile terminal. The base station gradually adjusts the power at which data is transmitted to the mobile terminal based on that associated transmission load. The carrier-to-interference ratio detected for a base station sector pilot signal received by a mobile terminal is affected by several factors which are generally divided into two groups: the power of the signal whose quality is to be determined, and the amount of noise and interference (col. 3, lines 28-51; col. 5, lines 6-62). Furthermore, the radio network controller is connected to a plurality of base stations. Each data transmission queue stores packets to be transmitted for an active connection with a mobile terminal (col. 8, lines 8-42). The controller adjusts the power level of the radio transceiving circuitry in each sector in based on a data packet transmission load associated with an active connection with a mobile terminal. The mobile terminal uses the signal quality detector to detect the signal quality for each received sector pilot signal in its candidate list. The controller may map each signal quality to a particular modulation and/or code rate using a lookup table. Alternatively, the signal quality could be forwarded to the base station. The controller controls the transmit power level of the radio transceiver in accordance with a transmission load (figs. 11-14; col. 9, line 47-col. 10, line 65).

Miya also discloses a transmission power control signal generation circuit that comprises a desired wave power calculation circuit for calculating a reception power of a desired wave component at the antenna, an interference power calculation circuit for calculating a reception power of interference wave components at the antenna, an signal to interference power ratio operation circuit for operating a signal to interference power ratio, a comparing circuit for

comparing the signal to interference power ratio with an SIR target level to output an error in the signal to interference power ratio (fig. 11; col. 2, lines 33-64; col. 3, lines 10-48;col. 8, lines 40-67;col. 10, lines 13-59; col. 11, lines 6-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Miya to the modified system of Dahlman and Takao in order to provide a transmission power control for controlling a transmission power of a code division multiple access radio wave signal based on the electric power.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 31, 38-40, 44-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Partain et al (US Patent No 7068607 B2).

Regarding claim 31, Partain et al discloses a radio resource management apparatus (figs. 1-3) comprising: controller (RNC of fig. 6; the radio network controller is responsible for radio resource management for the UTRAN application) for controllably changing a frequency used by a radio base station based on information on radio link qualities notified from plural radio terminals (fig. 1; col. 4, lines 9-20; col. 6, lines 1-33; col. 5, lines 23-36). Partain et al shows in figure 3, a bandwidth broker server that collects information from various load measurement proxies located at various points in the network. This information is used to determine the congestion state of various paths through the network (col. 6, lines 8-25). The bandwidth broker processes the on-demand admission requests for IP resources by using the results of load control measurements (abstract; col. 3, lines 46-65).

Regarding claim 38, Partain et al discloses a computer readable program, that operably controls a radio resource management apparatus in a radio communication system (figs. 1-3), comprising a control step of distributively controlling a load (RNC of fig. 6; the radio network controller is responsible for radio resource management for the UTRAN application), being a radio terminal accommodated by a radio base station based on information on radio link qualities notified from plural radio terminals (fig. 1;col. 4, lines 9-20;col. 6, lines 1-33; col. 5, lines 23-36). Partain et al shows in figure 3, a bandwidth broker server that collects information from various load measurement proxies located at various points in the network. This information is

used to determine the congestion state of various paths through the network (col. 6, lines 8-25). The bandwidth broker processes the on-demand admission requests for IP resources by using the results of load control measurements (abstract; col. 3, lines 46-65).

Regarding claim 39, Partain et al discloses a computer readable program, that operably controls a radio resource management apparatus in a radio communication system (figs. 1-3), comprising a control step of distributively controlling a load (RNC of fig. 6; the radio network controller is responsible for radio resource management for the UTRAN application), being a radio terminal accommodated by a radio base station based on information on radio link qualities notified from plural radio terminals (fig. 1;col. 4, lines 9-20;col. 6, lines 1-33; col. 5, lines 23-36). Partain et al shows in figure 3, a bandwidth broker server that collects information from various load measurement proxies located at various points in the network. This information is used to determine the congestion state of various paths through the network (col. 6, lines 8-25). The bandwidth broker processes the on-demand admission requests for IP resources by using the results of load control measurements (abstract; col. 3, lines 46-65).

Regarding claim 40, Partain et al discloses a computer readable program, that operably controls a radio resource management apparatus (figs. 1-3) in a radio communication system comprising a control step (RNC of fig. 6; the radio network controller is responsible for radio resource management for the UTRAN application) of controllably changing a frequency used by a radio base station (BTS of fig. 1) based on information on radio link qualities notified from plural radio terminals (fig. 1;col. 4,lines 9-20;col. 6, lines 1-33; col. 5, lines 23-36). Partain et al shows in figure 3, a bandwidth broker server that collects information from various load measurement proxies located at various points in the network. This information is used to

determine the congestion state of various paths through the network (col. 6, lines 8-25). The bandwidth broker processes the on-demand admission requests for IP resources by using the results of load control measurements (abstract; col. 3, lines 46-65).

Regarding claim 44, Partain et al discloses a computer readable program for executing a radio resource management apparatus (figs. 1-3) in a radio communication system by means of a computer, comprising the control step (RNC of fig. 6; the radio network controller is responsible for radio resource management for the UTRAN application) of controlling transmission power of a radio base station (BTS of fig. 1) based on information on radio link qualities notified from plural radio terminals (fig. 1;col. 4,lines 9-20;col. 6, lines 1-33; col. 5, lines 23-36). Partain et al shows in figure 3, a bandwidth broker server that collects information from various load measurement proxies located at various points in the network. This information is used to determine the congestion state of various paths through the network (col. 6, lines 8-25). The bandwidth broker processes the on-demand admission requests for IP resources by using the results of load control measurements (abstract; col. 3, lines 46-65).

Regarding claim 45, Partain et al discloses a computer readable program for executing a radio resource management apparatus (figs. 1-3) in a radio communication system, by means of a computer, comprising the control step (RNC of fig. 6; the radio network controller is responsible for radio resource management for the UTRAN application) of controllably changing a frequency used by a radio base station (BTS of fig. 1) based on information on radio link qualities notified from plural radio terminals (fig. 1;col. 4,lines 9-20;col. 6, lines 1-33; col. 5, lines 23-36). Partain et al shows in figure 3, a bandwidth broker server that collects information from various load measurement proxies located at various points in the network. This

information is used to determine the congestion state of various paths through the network (col. 6, lines 8-25). The bandwidth broker processes the on-demand admission requests for IP resources by using the results of load control measurements (abstract; col. 3, lines 46-65).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Partain et al (US Patent No 7068607 B2) in view of Carlsson et al (US Patent No 6167240).

Partain et al discloses everything claimed as explained in claim 31, except the features a control means control means that controls the frequency of a radio base station based on an interference amount being an average value of reception levels from neighboring radio base stations of the same frequency as the frequency used by an interested radio base station.

However, Carlsson et al also discloses a system and a method to reduce interference in a cellular communication system including at least one controlling arrangement communicating with a number of base stations, each of which serves a cell, and a number of mobile stations

controlled by the base stations. Each base station includes a detecting device for detecting interfering signals from one or more mobile stations controlled by other base stations. The base stations also include an alarm-activating device for activating the transmission of an alarm signal if interference is detected. The controlling arrangement includes a device for requesting identification of all mobile station in the neighborhood of the interfered base station. A device is also provided for establishing which controls base station an interfering mobile station, and the base station controlling the interfering mobile station takes the appropriate action to reduce the interference level (col. 2, lines 23-60; col. 4, lines 4-40). Furthermore, Carlsson et al shows in figure 5, a detector is implemented called base station user detector and which is used for detecting the users. The interference detector detects interfering signals generated by mobile stations controlled by other base stations (col. 7, lines 16-57; fig. 10; col. 8, line 51- col. 9, line 11). It is clearly stated that the occurrence of interference is detected based on the radio link quality information notified from the base stations (col. 7, lines 28-49;col. 8, line 55- col. 9, line 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Carlsson to the communication system of Partrain in order to provide a detector device in a base station for the purpose of reducing interference in a cellular communication system.

Allowable Subject Matter

7. Claims 3, 6, 9-10, 13, 15-16, 24-25, 30, 35-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments with respect to claims 1-2, 4-5, 7-9, 11-12, 14, 17, 20, 23, 26-29, 33, 37, 41-43, 46 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marceau Milord whose telephone number is 571-272-7853. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. M./

Primary Examiner, Art Unit 2618

/Marceau Milord/

Primary Examiner, Art Unit 2618